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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,870	10/12/2006	Alan Edward Litke	LC-509/PCT/US	5885
31217	7590	04/13/2011	EXAMINER	
Loctite Corporation One Henkel Way Rocky Hill, CT 06067			PEPTONE, MICHAEL F	
			ART UNIT	PAPER NUMBER
			1767	
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			04/13/2011 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/599,870

Applicant(s)

LITKE ET AL.

Examiner

MICHAEL PEPITONE

Art Unit

1767

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/22/10 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 34-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 34 and 46 recite the composition contains about 1 to about 30 wt% hexanediol diacrylate. The specification recites the composition contains curable methacrylates such as hexanediol diacrylate [0022] in an amount of from about 5 to about 85 wt% [0023]. It is unclear where there is support for about 1 to about 30 wt% hexanediol diacrylate in the instant

specification. Accordingly dependent claims 35-45 are rejected under 35 U.S.C. 112, first paragraph.

Note: it appears the reactive diluent N,N-dimethacrylamide is present in an amount of about 1 to 30 wt% [0034], however, hexanediol diacrylate is not listed as a reactive diluent, it is listed as a curable methacrylate [0022].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34-40 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. (US 5,559,163).

Regarding claims 34-40, 43-45: Dawson et al. teaches an abrasion resistant UV curable coating (abstract; 1:47-53), wherein a preferred coating composition comprises about 35-80 wt% hexanediol diacrylate, about 5-25 wt% trimethylpropane triacrylate, about 0.5-20 wt% of a benzotriazole, about 0.05-7 wt% of (2,4,6-trimethylbenzoyl)diphenylphosphine oxide {photoinitiator, eqv. to Lucirin TPO (4:31-35) [see specification, Table 2]}, and about 8-40 wt% colloidal silica (5:29-38; Tables I-II). Dawson et al. teaches ex. 19 containing 16.2 wt% silica {Nalco 1057 (ex. 26; 6:55-7:14), ~20 nm particle diameter}, 60.4 wt% 1,6-hexanediol diacrylate, 15.1 wt% trimethylpropane triacrylate, and 3.0 wt% {Tinuvin 328 [2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol]} (Table II, ex. 19).

Dawson et al. does not disclose a specific embodiment containing about 30 to about 50 wt% silica nanoparticles, and about 1 to about 30 wt% hexanediol diacrylate. However, in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) [See MPEP 2144.05].

Additionally, one having skill in the art would have found it obvious to have prepared a composition containing up to 40 wt% colloidal silica and about 30 wt% hexanediol diacrylate, as Dawson et al. teaches the preferred coating composition comprises about 35-80 wt% hexanediol diacrylate {the lower limit of about 35 wt% overlaps with the upper limit of about 30 wt%} and about 8-40 wt% colloidal silica {upper limit of 40 wt% overlaps about 30-50 wt%} (5:29-38; Tables I-II). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents, in the claimed amounts, was prepared under similar conditions, and the original specification does not specify that the properties arise from a specific ingredient or process step and therefore appears to be the mere result of the mixture and/or process. Therefore, the claimed effects and physical properties, i.e. the coating being capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs [instant claim 34]; the composition has a viscosity of about 5 to about 3000 cps [instant claim 45], would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's

position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. (US 5,559,163).

Regarding claim 46: Dawson et al. teaches an abrasion resistant UV curable coating (abstract; 1:47-53) which is subsequently coated onto a Lexan film (5:52-57) [corresponding to an abrasion resistant road reflector], wherein a preferred coating composition comprises about 35-80 wt% hexanediol diacrylate, about 5-25 wt% trimethylpropane triacrylate, about 0.5-20 wt% of a benzotriazole, about 0.05-7 wt% of (2,4,6-trimethylbenzoyl)diphenylphosphine oxide {photoinitiator, eqv. to Lucirin TPO (4:31-35) [see specification, Table 2]}, and about 8-40 wt% colloidal silica (5:29-38; Tables I-II). Dawson et al. teaches ex. 19 containing 16.2 wt% silica {Nalco 1057 (ex. 26; 6:55-7:14), ~20 nm particle diameter}, 60.4 wt% 1,6-hexanediol diacrylate, 15.1 wt% trimethylpropane triacrylate, and 3.0 wt% {Tinuvin 328 [2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol]} (Table II, ex. 19).

Dawson et al. does not disclose a specific embodiment containing about 30 to about 50 wt% silica nanoparticles, and about 1 to about 30 wt% hexanediol diacrylate. However, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) [See MPEP 2144.05].

Additionally, one having skill in the art would have found it obvious to have prepared a composition containing up to 40 wt% colloidal silica and about 30 wt% hexanediol diacrylate, as Dawson et al. teaches the preferred coating composition comprises about 35-80 wt% hexanediol diacrylate {the lower limit of about 35 wt% overlaps with the upper limit of about 30 wt%} and about 8-40 wt% colloidal silica {upper limit of 40 wt% overlaps about 30-50 wt%} (5:29-38; Tables I-II). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents, in the claimed amounts, was prepared under similar conditions, and the original specification does not specify that the properties arise from a specific ingredient or process step and therefore appears to be the mere result of the mixture and/or process. Therefore, the claimed effects and physical properties, i.e. the coating being capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs [instant claim 46], would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. (US 5,559,163), as applied to claim 34 above, in further view of Kang et al. (US 6,265,061).

Regarding claims 41-42: Dawson et al. renders the basic claimed composition obvious [as set forth above with respect to claim 34]; wherein the abrasion resistant UV curable coating (abstract; 1:47-53) is subsequently coated onto a Lexan {polycarbonate} film (5:52-57).

Dawson et al. does not teach N,N-dimethylacrylamide. However, Kang et al. teaches teaches an abrasion resistant coating (abstract, 1:15-20; ex. 1) comprising N,N-dimethylacrylamide (17:27-18:10). Dawson et al. and Kang et al. are analogous art because they are concerned with a similar technical difficulty, namely the preparation of abrasion resistant coating compositions. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined N,N-dimethylacrylamide, as taught by Kang et al. in the invention of Dawson et al., and would have been motivated to do so since Kang et al. suggests that N,N-dimethylacrylamide provides improved adhesion to polycarbonate sheets (17:27-18:10).

Claims 34-45 rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al. (US 6,265,061).

Regarding claims 34-42 and 45: Kang et al. teaches an abrasion resistant coating (abstract, 1:15-20; ex. 1) comprising a ceramer containing (4:14-40) trimethylolpropane triacrylate (TMPTA) [substituted for pentaerythritol triacrylate (PETA) (19:27-54) [see MPEP 2131.02]] (28:1-29:26); 35.2 wt% of a colloidal silica having an average particle size of 20 nm {NALCO 2327} (28:50-29:26); and a photoinitiator which absorbs in the range of 180-400 nm (below 333 nm) {IRGACURE 184 (1-hydroxy-cyclohexyl-1-phenyl-ketone)} (29:5-8). Kang et al. teaches formulations comprising about 22% TMPTA, 34% Nalco 2327, 0.850% IRGACURE

184 (37:50-38:63; ex. 16; Table 15), wherein the UV cured coating passes a steel wool test (Table 15). Kang et al. teaches formulations comprising about 22% PETA, 34% Nalco 2327, 0.850% IRGACURE 184, and about 3 wt% (N,N-dimethylacrylamide (DMA) (37:50-38:63; ex. 16; Table 17), wherein the UV cured coating passes a steel wool test (Tables 15, 17). Kang et al. teaches the composition can contain the diacrylic acid ester of 1,6-hexamethylenediol {1,6-hexanediol diacrylate} (19:27-36) in an amount of 0 to 75 wt% (16:3-24).

Kang et al. teaches does not specifically disclose an embodiment containing 1,6-hexanediol diacrylate in an amount of about 1 to about 30 wt%. However, at the time of invention a person of ordinary skill in the art would have found it obvious to included 1,6-hexanediol diacrylate in an amount of 0 to 75 wt% based on the invention of Kang et al., and would have been motivated to do so since Kang et al. suggests that the composition can contain monomers such 1,6-hexanediol diacrylate in an amount of 0 to 75 wt% (16:3-24; 19:27-36). Additionally, "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents, in the claimed amounts, was prepared under similar conditions, and the original specification does not specify that the properties arise from a specific ingredient or process step and therefore appears to be the mere result of the mixture and/or process. Therefore, the claimed effects and physical

properties, i.e. the coating being capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs [instant claim 34]; the composition has a viscosity of about 5 to about 3000 cps [instant claim 45], would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Regarding claims 43-44: Kang et al. teaches stabilizers {phenothiazine} (21:55-61; 28:62) including ozone stabilizers (22:12-24); thermal stabilizers/antioxidants (22:25-43); UV stabilizers {hydroxyphenyl benzotriazole} (21:62-22:11; 28:30-44) such as hindered amine light stabilizers (Tables 1, 16-17).

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al. (US 6,265,061).

Regarding claim 46: Kang et al. teaches a retroreflective sheet {road reflector} (34:44-63; 37:50-38:64) coated with an abrasion resistant coating (abstract, 1:15-20; ex. 1) comprising a ceramer containing (4:14-40) trimethylolpropane triacrylate (TMPTA) [substituted for pentaerythritol triacrylate (PETA) (19:27-54) [see MPEP 2131.02]] (28:1-29:26); 35.2 wt% of a colloidal silica having an average particle size of 20 nm {NALCO 2327} (28:50-29:26); and a photoinitiator which absorbs in the range of 180-400 nm (below 333 nm) {IRGACURE 184 (1-hydroxy-cyclohexyl-1-phenyl-ketone)} (29:5-8). Kang et al. teaches formulations comprising

about 22% TMPTA, 34% Nalco 2327, 0.850% IRGACURE 184 (37:50-38:63; ex. 16; Table 15), wherein the UV cured coating passes a steel wool test (Table 15). Kang et al. teaches formulations comprising about 22% PETA, 34% Nalco 2327, 0.850% IRGACURE 184, and about 3 wt% (N,N-dimethylacrylamide (DMA) (37:50-38:63; ex. 16; Table 17), wherein the UV cured coating passes a steel wool test (Tables 15, 17). Kang et al. teaches the composition can contain the diacrylic acid ester of 1,6-hexamethylenediol {1,6-hexanediol diacrylate} (19:27-36) in an amount of 0 to 75 wt% (16:3-24).

Kang et al. teaches does not specifically disclose an embodiment containing 1,6-hexanediol diacrylate in an amount of about 1 to about 30 wt%. However, at the time of invention a person of ordinary skill in the art would have found it obvious to included 1,6-hexanediol diacrylate in an amount of 0 to 75 wt% based on the invention of Kang et al., and would have been motivated to do so since Kang et al. suggests that the composition can contain monomers such 1,6-hexanediol diacrylate in an amount of 0 to 75 wt% (16:3-24; 19:27-36). Additionally, "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents, in the claimed amounts, was prepared under similar conditions, and the original specification does not specify that the properties arise from a specific ingredient or process step and therefore appears

to be the mere result of the mixture and/or process. Therefore, the claimed effects and physical properties, i.e. the coating being capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs [instant claim 46], would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Response to Arguments

Applicant's arguments with respect to claims 1,-3, 6-14, 20-21, and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Kang et al. (US 6,265,061) was relied on for disclosing a retroreflective sheet {road reflector} (34:44-63; 37:50-38:64) coated with an abrasion resistant coating (abstract, 1:15-20; ex. 1) comprising a ceramer containing (4:14-40) trimethylpropane triacrylate (TMPTA) [substituted for pentaerythritol triacrylate (PETA) (19:27-54) [see MPEP 2131.02]] (28:1-29:26); 35.2 wt% of a colloidal silica having an average particle size of 20 nm {NALCO 2327} (28:50-29:26); and a photoinitiator which absorbs in the range of 180-400 nm (below 333 nm) {IRGACURE 184 (1-hydroxy-cyclohexyl-1-phenyl-ketone)} (29:5-8). Kang et al. teaches formulations comprising about 22% TMPTA, 34% Nalco 2327, 0.850% IRGACURE 184 (37:50-38:63; ex. 16; Table 15), wherein the UV cured coating passes a steel wool test (Table 15). Kang et al. teaches formulations comprising about 22% PETA, 34% Nalco 2327, 0.850%

IRGACURE 184, and about 3 wt% (N,N-dimethylacrylamide (DMA) (37:50-38:63; ex. 16; Table 17), wherein the UV cured coating passes a steel wool test (Tables 15, 17). Kang et al. teaches the composition can contain the diacrylic acid ester of 1,6-hexamethylenediol {1,6-hexanediol diacrylate} (19:27-36) in an amount of 0 to 75 wt% (16:3-24).

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. See attached form PTO-892.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PEPITONE whose telephone number is (571)270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MFP
8-April-11

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1767